REMARKS

The Official Action of 19 September 2007 has been carefully considered and reconsideration of the application as amended is respectfully requested.

The specification has been amended to identify the nucleotide sequences described therein with SEQ ID NOs as required in paragraph 2 of the Official Action. A revised Sequence Listing is submitted herewith, along with the requisite statements of identity and no new matter, to identify the sequences in Figs. 4 and 5 that were not previously included in the Sequence Listing. Applicants respectfully note that the sequence rules only apply to unbranched sequences of ten (10) or more nucleotides (see MPEP 2422).

The claims have been amended to reinstate the definition of storage DNA in original claim 1 and thereby to remove the basis for the rejection under 35 USC 112, second paragraph appearing at paragraph 4 of the Official Action.

Claims 1, 2, 4, 5, 11, 13 ,17, 22, 26, 27 and 29-31 were rejected under 35 USC 103(a) as allegedly being unpatentable over Bancroft et al in view of Ackley. Applicants respectfully traverse this rejection.

The claimed invention is based in part upon Applicants' recognition that a secret message can be encoded in a DNA sequence wherein each character of an extended 256 ASCII character set is represented by a code of 4 DNA bases

(see Fig. 3 of the drawings). Applicants also recognized that, since such an extended ASCII character set can be represented by a combination of 4 bases (4^n = 256 combinations, where n=4 bases), there is no need for a higher combination of bases for each ASCII character. This is advantageous since, if more than 4 bases were used, handling of codes would no longer be a simple task.

In contrast, Bancroft et al teaches encryption of 40 characters, 26 capital alphabets (no information regarding smaller counterparts), 10-numerals (i.e. 0-9 numbers) and four special characters (space, comma, dot, colon). It does not disclose or teach encryption of 256 standard ASCII characters.

Bancroft et al teachings are limited to alpha-numerals and certain special characters and can not represent most of the digital documents like images/audio/video etc. The claimed method for storing information using a unique sequence of four DNA bases can be used to encrypt text images, video, audio and every kind of digital information.

The Examiner has acknowledged that Bancroft does not teach the provision of an encryption key where each character of an extended ASCII character set is represented by a DNA code of four bases, but he contends that it would have been obvious from Ackley to increase the number of DNA bases representing each character because Ackley teaches that increasing the size of a code increases the number of characters the code may represent. However,

Ackley does not show or suggest the use of 4 (and only 4) unique **DNA bases** to represent 256 ASCII characters nor does he consider the difficulties that are presented in the use of lengthy DNA bases for encryption. Thus, the portion of Ackley that the Examiner cites for the rejection (columns 1 and 2) describe only 7-bit character sets and higher. (In the summary of his invention, Ackley uses a 6-bit character set.)

Accordingly, Ackley not only does not provide a motivation, reason or rationale to use a character set comprising DNA bases, it also does not provide a motivation, reason or rationale to use 4 and only 4 DNA bases to represent 256 ASCII characters. This is particularly true because DNA bases are naturally read in triplets, as is the case in Bancroft (see Bancroft at Fig. 1 B). There is nothing in either Ackley or Bancroft that would cause one of skill in the art to overcome the prejudice of reading DNA bases as they are read naturally, in triplets. If there were, Bancroft would not have used a triplet code since it was filed long after the patenting of the earliest of the applications in the string of Ackley applications.

For the above reasons, Applicants respectfully submit that it would not have been obvious from Bancroft, Ackley or their combination to increase the number of nucleotides in the base code of Bancroft to four (4), as required in all of the claims presently of record. With particular respect to claim 22 and the claims depending therefrom, Applicants respectfully note that these claims require that the encryption sequence of each of a plurality of DNA molecules encodes a different portion of a message. There is nothing in either of the

references to show this and Applicants respectfully submit that these claims are separately patentable for this reason as well.

The Examiner has referred to Bancroft at column 4, lines 45-54 and column 6, lines 30-42 as allegedly teaching the production of a plurality of synthetic DNA molecules that each encodes a different portion of a message, but Applicants respectfully disagree. At column 4, lines 45-54, Bancroft teaches that the DNA molecules may differ in length, but does not teach that each of the different length molecules may contain a different portion of a message. At column 6, lines 30-42, Bancroft teaches that a plurality of secret messages could be added to the same genomic DNA, but does not teach that each of a plurality of molecules each encoding different portions of **the same** message.

In view of the above, Applicants respectfully submit that the prior art rejections and all other objections and rejections of record have been overcome and should be withdrawn. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,

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